INVESTIGATING THE IMPACT OF GREEN E-COMMERCE ON ORGANIZATIONAL PERFORMANCE IN INDIA

Synopsis

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SECTION - I

1.1 Introduction

The Internet's significance has grown exponentially over time. It has now assumed a central and indispensable role in the fabric of modern Indian society. As per the most recent report collaboratively released by the Internet and Mobile Association of India (IAMAI) and Kantar (a global data, insights, and consulting company based in London, England) in 2022, approximately 52% of the population, which equates to around 759 million individuals, engages with the Internet at least once a month. The report highlights a projected rise in active internet users in India, reaching 900 million by 2025, with significant involvement anticipated from rural areas. Additionally, the report indicates a notable increase in Net Commerce activities, reflecting a 14% rise compared to 2021. Net Commerce activities encompass internet users engaged in online transactions such as bill payments, food orders, online shopping, cab bookings, and travel ticket reservations within the past year. Within this category, Online Shopping, a subset of Net Commerce users, experienced a significant 19% growth compared to the statistics from 2021. It has become apparent that there is a growing inclination among consumers in India toward the convenience and accessibility of online shopping. This trend is steadily gaining momentum as more and more people choose to make their purchases through digital platforms.

The expansion in electronic commerce (e-commerce) is a result of the rise in smartphone and internet users, widespread availability of 3G/4G internet services, increased public awareness, governmental efforts towards digitalization, enhanced shipping, and payment alternatives, as well as the entry of international e-business participants, among other factors (Shewale, 2021). A growing number of people are shifting towards online platforms owing to their convenience and speed, the seamless shopping experience, and simplified return processes. This trend is foreseen to persist in the foreseeable future, contributing to substantial e-commerce expansion within the nation.

As e-commerce continues to expand, ensuring sustainability becomes increasingly imperative. The rise in online shopping and deliveries carries environmental consequences like excess packaging waste and higher carbon emissions from transportation. Furthermore, the demand for green products has also risen significantly due to increased consumer awareness and a willingness to pay extra for environmentally friendly products that offer enhanced value (Mustafa et al., 2022). Thus,

sustainability practices must be adopted by firms and stakeholders if e-commerce is to remain viable over the long term.

In contemporary organizational contexts, sustainability has emerged as an increasingly vital concern, spanning across all aspects of business operations, and corporate sustainability (CS) has evolved into the pivotal framework guiding modern global business models (Pazienza et al., 2022). Pazienza et al. (2022) elucidated the corporate sustainability concept through an ontological analysis of sustainability, corporate social responsibility, and corporate sustainability concepts. This revealed how these ideas have come together, encompassing environmental, societal, and economic dimensions.

The research aims to provide insights into the relationship between e-commerce and the three widely accepted dimensions of sustainability. Furthermore, it seeks to examine technology's impact on sustainability efforts' outcomes. The emergence of digital technologies and the associated Internet of Things (IoT) capabilities offers a great potential to address the Sustainable Development Goals (SDGs) by presenting creative approaches and tactics across diverse sectors to achieve sustainable development. These technologies are also positioned to accelerate Industry 4.0, improve public well-being, and lessen the effects of climate change (Mondejar et al., 2021).

1.2 E-commerce

E-commerce involves the transaction of physical goods and intangible (digital) products and services (which are delivered digitally) (Satnalika & Rao, 2015). The following are the different types of e-commerce platforms:

- Business-to-business (B2B): It involves trade between two or more businesses/companies.
- Business-to-Consumer (B2C): The Business-to-Consumer (B2C) model involves the retail side of online commerce, where products and services are directly sold to individual consumers using digital platforms. Popular websites such as Amazon or Flipkart are some of its examples.
- Consumer-to-Consumer (C2C): This business model is leveraged by a consumer for selling used goods and/or services to other consumers through the digital medium.
- Consumer-to-Business (C2B): The consumer-to-business (C2B) concept allows consumers to pitch their goods or services to businesses. This strategy is frequently used in crowdsourcing initiatives, where tasks like designing elements, selling royalty-free images, and producing logos

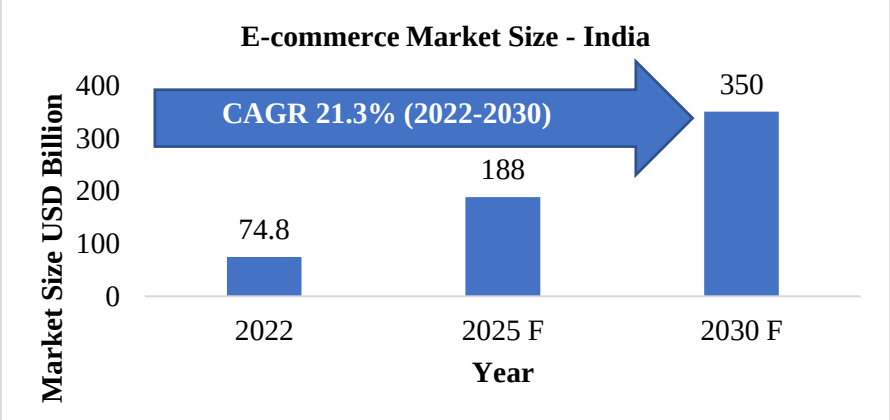
are typical examples.

- Business-to-Administration (B2A): This is similar to B2B except that the buyer is a government entity (Satnalika & Rao, 2015).
- Consumer-to-Administration (C2A): Consumer-to-Administration (C2A) is when consumers connect with government offices and administrative entities using online platforms. It's a modern way for citizens to interact with the government and get things done without having to visit physical offices.

  On the other hand, the term "e-retail" covers all the different methods of buying and selling goods using electronic platforms. It includes two main ways of doing business: online retail stores where companies directly sell to customers, and online marketplaces where various sellers gather to offer their products (Satnalika & Rao, 2015). E-retail is like online shopping, while e-commerce covers a much larger spectrum of digital business activities.

1.3 E-commerce in India

Online shopping and the world of Internet business are incredibly important and shouldn't be underestimated. It's changed the way of shopping and carrying out various transactions. Globally, India's e-commerce market is becoming increasingly dynamic and vibrant due to its rapidly growing digital population. According to the India Brand Equity Foundation (IBEF), a trust set up by the Department of Commerce under the Ministry of Commerce and Industry in the Government of India, India's e-commerce market will reach a value of USD 350 billion by the year 2030. Moreover, sectors like food and fashion will play a significant role in achieving this growth.



Source: India Brand Equity Foundation (IBEF) report, May 2023
Figure 1. E-commerce Market Size – India

Moreover, in the fiscal year 2020-21, there was a significant surge in India's e-commerce activity, witnessing a substantial 77% increase in online transactions. This surge was predominantly fuelled by smaller cities, often referred to as tier 2 and tier 3 cities. These urban centres displayed an unexpected and significant upswing in their embrace of online shopping practices, underscoring the country's evolving landscape of digital commerce. Several crucial factors have driven this impressive growth. First, the expansion of logistics and warehousing has improved the efficiency of e-commerce, ensuring smoother deliveries. Second, providing internet content in local languages has made online shopping more accessible and user-friendly to a wider audience. Third, mobile commerce has transformed shopping, offering convenience through smartphones and apps. Additionally, modernizing payment methods has built trust and simplified transactions, further promoting e-commerce. Lastly, increased consumer spending, combined with the convenience and variety of online platforms, has fuelled overall e-commerce growth. These factors have worked harmoniously to fuel India's e-commerce boom, shaping a dynamic and evolving landscape.

1.4 Sustainability

The adoption of sustainable business practices is rapidly gaining traction and emerging as a significant overarching trend. A diverse array of social and environmental challenges currently affects the global population, including issues like social disparities, inequitable wealth distribution, economic instability, conflicts, gender imbalances, educational deficits, widespread poverty, shifting climate patterns, habitat degradation, species decline, and ecological deterioration. Many of these issues could find potential solutions through the integration of more sustainable business practices within the private sector (Chungyalpa, 2021).

In 1987, the Brundtland Commission of the United Nations introduced the concept of sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." A sustainable business is financially viable, socially responsible, and environmentally aware (Chungyalpa, 2021).

In business terms, sustainability can be characterized as a company's capacity to address its immediate financial requirements while safeguarding its own and others' capability to fulfil future necessities.

Therefore, the concept of sustainability revolves around time as a pivotal factor (Bansal & DesJardine, 2014). The allocation of resources must be controlled across shorter timescales to preserve equilibrium within larger-scale economic, social, and environmental systems. Businesses operate within these broader systems and frequently need to make wise choices that include trade-offs to ensure that their operations run smoothly with the fewest possible negative repercussions. For instance, if a business prioritizes aggressive marketing tactics above research and development and invests insufficient cash in the latter, its value may eventually decline. Thus, company managers are forced to distribute assets in a way that secures both short-term earnings and ongoing income streams to survive (Bansal & DesJardine, 2014).

PART - II

2.1 Literature Review

2.1.1 Sustainability and E-commerce: Green E-Commerce

E-commerce has emerged as the primary preference for shoppers due to its convenience. Furthermore, the COVID-19 pandemic compelled individuals to solely rely on e-commerce for essential purchases. Notably, even post-pandemic, the dominance of e-commerce continues to expand. However, this surge in e-commerce has led to a surge of over 100% in transportation and distribution volumes in certain cities. Consequently, this growth has resulted in a noteworthy ecological footprint and raised concerns about the sustainability of such expansion (Zhang, 2023). Thus, to steer e-commerce toward a sustainable future, it is observable that numerous e-commerce platforms globally are progressively implementing strategies focused on sustainability.

In a recent study, Zhang (2023) conducted an extensive literature review to explore the prevailing research directions in the realm of e-commerce sustainability – Green E-Commerce. The investigation utilized a framework of nine thematic areas derived from transitions research as outlined by Köhler et al. (2019). These categories encompass diverse facets of sustainable transition research, encompassing: (1) Elucidating transitions; (2) Dynamics of power, agency, and politics within transitions; (3) Steering transitions through governance; (4) Involvement of civil society, cultural dynamics, and social movements in transitions; (5) Examination of organizations and industries within the context of sustainable transition; (6) Transitions as manifested in practical applications and

everyday life; (7) Spatial aspects of transitions: encompassing dimensions, scales, and locations; (8) Ethical dimensions of transitions: encompassing considerations of distribution, justice, and poverty; and finally, (9) Methodologies tailored for researching transitions in various contexts. The result of the study is presented in the table below:

Table 1. Literature Review - Green E-Commerce

Theme	Number of Papers found	Description	Indicators
Elucidating Transitions	11	Papers within this theme delve into comprehending the fundamentals of sustainable e-commerce, investigating factors influencing sustainability, and exploring the environmental repercussions of online purchases. Examples include research on the environmental impacts of online shopping and strategies for sustainable last-mile transport.	Customer attitude, customer perception, Environmental impact, last-mile transport improvement, sustainable e-commerce delivery
Power, Agency, and Politics in Transitions	3	Three identified papers can be broadly categorized as general policy designs that primarily advocate and propose political frameworks. However, these papers focus on advocating rather than practically implementing policies through governmental administrative departments.	Cross-border e-commerce, supply chain, waste management, omnichannel, hybrid strategy, supply chain extension
Governing Transitions	0	This theme highlights a gap in research, indicating a lack of focus on the governance aspect of sustainable transitions. Governance plays a vital role in shaping sustainable development through socio-political norms and rules, but the papers identified fall short in this specific area.	-
Transitions in Practice and Everyday Life	2	Limited research is present within this theme, emphasizing the need to raise awareness and promote sustainable practices in everyday e-commerce activities. Studies discuss sustainable reverse logistics and reselling practices, pointing to the potential gap between the extensive presence of e-commerce in daily life and the awareness of sustainable practices.	Sustainable reverse logistics, sustainable reselling practices, reconfiguration of socio-technical systems
Civil Society, Culture, and Social Movements in Transitions	2	Within this thematic area, two papers delve into the influence of cultural contexts and social dynamics on sustainable e-commerce. These papers specifically highlight the significance of cultural concepts, such as "guanxi," in shaping e-commerce practices.	Cultural aspects and their impact on e-commerce functioning

		Additionally, the papers showcase how remote communities have harnessed e-commerce to alleviate poverty. The insights gleaned from these studies have the potential to be applied and adapted in diverse cultural contexts beyond the ones explored in the research.	
Organizations and Industries in Sustainable Transition	2	This theme focuses on specific domains and industries within sustainable transitions. The fashion and logistics industries receive attention, with calls for collaborative efforts involving small to medium-sized enterprises. Papers advocate strategic collaborations and approaches to drive sustainable change within these sectors	Focus on a collaborative effort to achieve sustainability
Geography of Transitions: Spaces, Scales, Places	6	Papers on this theme predominantly study sustainable e-commerce in European developed economies, with less focus on emerging economies and Asian nations. This highlights the need for broader geographic diversity in research to cover a wider range of regions.	-
Ethical Aspects of Transitions: Distribution, Justice, Poverty	5	In this theme, papers explore ethical concerns in e-commerce. The primary objective within this context is to cultivate dynamic customer relationships, enhance satisfaction, and collaboratively achieve secure and sustainable e-commerce development.	Data security in e-commerce payment, fraud detection systems, trust, liability, and personal data security
Methodologies for Transitions Research	20	This theme features numerous papers with diverse methodologies addressing e-commerce sustainability challenges. The research covers supply chain issues, energy consumption, production practices, and logistics. Quantitative and qualitative analyses contribute practical solutions. Notable examples include using fuzzy cognitive maps and value-focused thinking for sustainable e-commerce strategies, a content model for renewable energy enhancement, and a crowdsourced delivery tool for last-mile logistics.	Supply chain, production, energy consumption, resource inefficiency, and logistics of delivery

(Source: Zhang ,2023)

2.1.2 Environmental Dimensions

The environmental dimension revolves around maintaining ecological harmony. It involves making choices and taking steps that prioritize the protection of nature, with a strong focus on safeguarding the environment's capacity to support human life. Businesses, recognized as major contributors to environmental impact, are expected to take a leading role in advancing the environmental dimension.

Their influential position empowers them to bring about significant change. By assuming responsibility for adopting sustainable practices, businesses can set a precedent and substantially impact preserving the environment. Through this collective effort, they reduce their ecological footprint and inspire a wider movement towards a balanced coexistence with the environment.

Various research studies have focused on the dimension of the environment, breaking it down into three key elements: Climate Change, Waste Handling, and Energy Sources. Furthermore, this holistic view encompasses seven environmental impact categories, which comprise climate change, acidification, ozone depletion, eutrophication, chemical pollution, freshwater usage, and shifts in biosphere integrity and biodiversity (Dong & Hauschild, 2017).

E-commerce has the potential to reduce energy consumption and promote sustainability. E-commerce brings about improvements in productivity, energy efficiency, and transportation. It has a positive impact on the environment through various means. E-commerce helps control vehicle usage in crowded areas, leading to a significant decrease in CO2 emissions (Xie et al., 2022). While e-commerce offers benefits like saving energy and time, it also comes with drawbacks. For example, the competitive nature of online retail is pushing companies to adopt strategies like same-day or quick deliveries, which can harm the environment (Rao et al., 2021). According to the World Economic Forum, the demand for fast urban deliveries due to online shopping is predicted to increase by 78% by 2030. This could lead to a 36% rise in delivery vehicles in 100 cities globally, causing a nearly one-third increase in emissions related to the environment (World Economic Forum, 2020). These trends underscore the growing importance of prioritizing the environmental dimension and closely monitoring its impact, while also necessitating the development of innovative solutions to address these challenges effectively. In the case of e-commerce, studies have partially explored sustainable e-commerce in aspects such as packaging materials, the optimization of logistics to minimize carbon emissions, and the mitigation of adverse environmental effects (Zhang, 2023). Additionally, multiple research projects have revealed insights into the influence of electric vehicles on zero-emission fleets for last-mile delivery. Moreover, efforts to cultivate an environmental consciousness are being made, promoting recycling and sustainable packaging materials to bolster the environmental dimension. Furthermore, consumer awareness campaigns are being carried out, advocating for local deliveries

from nearby e-retail shops to minimize carbon emissions (Sarkar, 2023). These combined endeavours underscore the multifaceted approach being taken to enhance sustainability within the e-commerce sector (Green E-Commerce).

2.1.3 Social Dimensions

The social dimension refers to the aspects of sustainability that relate to people. People should be understood as workers, consumers, suppliers, shareholders, community, etc., that significantly influence the abilities of a company to function now as well as in the future.

Eizenberg and Jabareen's (2017) study introduced a conceptual framework addressing social dimensions. It presents a broad perspective on the social dimension, which constitutes a vital component within the broader sustainability context designed to address challenges posed by environmental and climate-related risks. This framework aims to comprehensively grasp social dimensions by unifying elements from social, economic, and ecological dimensions. As per the framework, the idea of equity is all about making sure that rules and decisions are fair for everyone, and that people have a say in how their living spaces are created. This can help prevent feelings of being left out and can make communities more friendly and connected. Safety is an important part of sustainability, which means making things last and work well over time. Safety in this case is not just about not getting hurt, but also about planning to avoid problems and harm in the future. The concept of eco-prosumption is about how individuals use things in a way that's good for both people and the environment. It's about finding ways to consume, produce, and benefit from things responsibly and thoughtfully. This includes actions taken by a society to lessen negative impacts on the environment. Sustainable urban forms are the physical shapes and layouts of cities and communities that people want. Overall, these concepts are about making the communities better, safer, and more caring while also taking care of the environment.

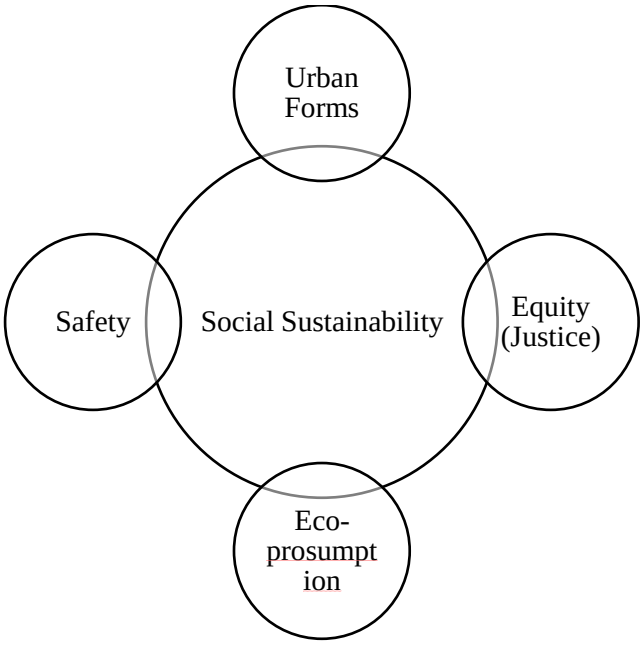


Figure 2. Concepts of Social Dimension
(Source: Eizenberg and Jabareen's, 2017)

Eizenberg and Jabareen (2017) provide a comprehensive perspective on the social dimension, while Ajmal et al. (2017) offer insights into the social dimension from both a societal and company standpoint. Their work contributes to a broader understanding of the social dimension and proposes a framework tailored to the business context. This framework is structured into three distinct zones, each represented by a different colour (green, yellow, and red). Within these zones, organizations can prioritize their actions based on corresponding indicators. Indicators falling within the green zone signify areas where the company has already demonstrated strength and effectiveness. In the yellow zone, indicators represent areas where the organization is performing adequately but could benefit from additional initiatives to achieve excellence. The red zone indicators highlight aspects in which the company is noticeably lagging and necessitates significant improvements to attain an acceptable level of performance. This framework facilitates informed decision-making by helping organizations focus their efforts on enhancing social dimensions across various dimensions.

A holistic approach to business operations that takes into account the welfare of employees, consumers, communities, and society at large is required for social sustainability in e-commerce. E-commerce companies can help create a market that is more just and ethical by adhering to these ideals.

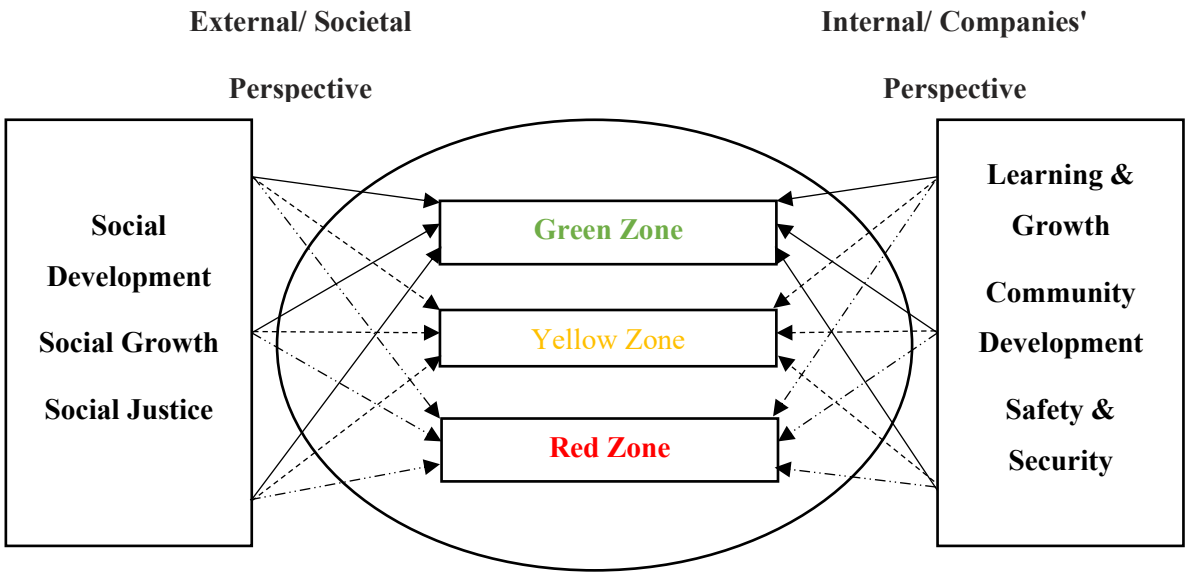


Figure 3. Social Dimension Indicators and Organizations
(Source: Ajmal et al. ,2017)

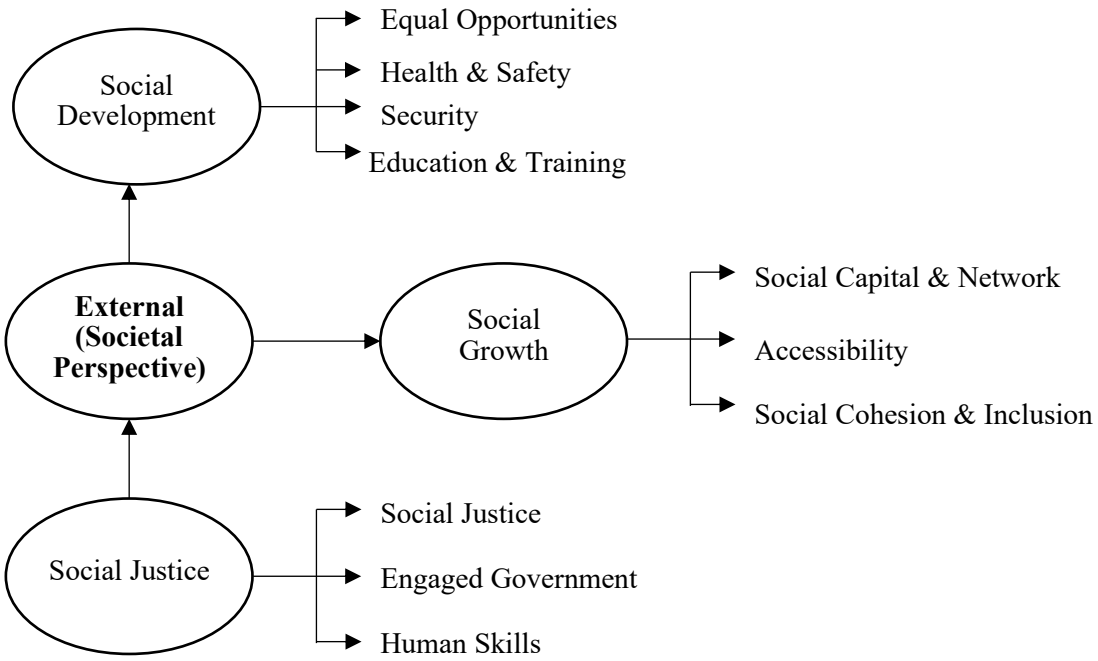


Figure 4. Social Dimension Indicators from the Societal Perspective
(Source: Ajmal et al. 2017)

Figure 5. Social Dimension Indicators from Companies 'Perspective
(Source: Ajmal et al. (2017)

Businesses can achieve a responsible and secure digital marketplace by considering the relationship between the social dimension of sustainability and e-commerce security. Eizenberg and Jabareen's holistic view of the social dimension of sustainability, in conjunction with Ajmal et al.'s framework, provides a foundation for corporations to evaluate their efforts in social sustainability. When applied to the e-commerce sector, this perspective underscores the vital importance of ensuring customer security as a fundamental element of the social dimension of sustainability. Pabian et al. (2020) research aligns with this view, as it regards security as an integral social aspect, emphasizing that security threats are, inherently, social challenges. Consequently, addressing security concerns not only shields countless users but also fosters the development of an ethical marketplace by e-commerce enterprises. Pabian et al. (2020) paper focuses on the security aspects of e-commerce from the perspectives of both e-customers and e-shops. The threats on the e-customer side were defined based on 50 in-depth consumer interviews.

As per the study, the threats experienced by e-customers are categorized into three primary areas: the security of payment methods, the protection of personal data and payment card information, and the security of purchased products. These risks affect both online shoppers and those who abstain from online purchases. Individuals who do not shop online often fear monetary theft and the compromise of

their data. Reasons for not engaging in online shopping also include factors like lack of internet access, unfamiliarity with online shopping platforms, and a preference for traditional in-person shopping.

Among online shoppers, the perceived threats vary in intensity. Most e-customers are particularly concerned that the products they purchase online may not meet their expectations. This apprehension can stem from the inability to physically inspect products before buying or disparities between the delivered product and its online description. Other strongly perceived risks involve the delivery process, such as damage during shipment, delayed deliveries, or deliveries when the customer is not present. Data phishing or potential fraud is a secondary concern within this group of threats. Less perceptible threats for e-customers include the shipment of incorrect products, loss of shipments, and difficulties in returns, exchanges, or refunds. Enhancing e-customer security in the e-commerce market can be achieved by increasing investments in countering cybercrime, conducting extensive awareness campaigns about online threats, and allocating more resources to educate the public about IT-related security measures. Importantly, the security of e-customers is closely tied to the security measures implemented by e-commerce stores. The research findings reveal that e-stores have varying levels of commitment to cybersecurity. Common security practices include data backup, the use of antivirus programs, regular software updates, adherence to application and server access protocols, and safeguarding personal data. However, e-stores are less proactive in conducting security audits and risk analyses, and investing in cybersecurity is often not a top priority. Additionally, many companies do not employ dedicated specialists in the field, and the utilization of artificial intelligence for security purposes remains limited.

E-commerce threats represent a clear illustration of this challenge. The issue is steadily escalating due to the continuous growth in the number of online buyers and sellers. Integrating e-commerce security into strategies and initiatives aimed at sustainable development will serve to elevate the attention this issue receives from governments and international organizations.

2.1.4 Economic Dimensions

The economic dimension of sustainability means using methods that help a company or a whole country grow and do well financially for a long time. The economic dimension of sustainability is

crucial for a business because it can't keep growing in the long run if it uses up all the Earth's resources or treats people poorly. Nowadays, businesses can't keep damaging the environment or hurting their communities to make money over time. Doing that would create problems that make it hard for the business to keep going.

Concerning e-commerce, achieving economic sustainability involves the careful and strategic management of financial resources, partnerships, and activities. The goal is to ensure the continued financial viability of e-commerce businesses and to make positive economic contributions to the broader digital commerce ecosystem. The article "E-Commerce Engagement: A Prerequisite for Economic Sustainability" by Kennedyd et al. (2022) points out that in today's world, for businesses of all shapes and sizes, having some form of online presence is crucial for their long-term success. The ability to adjust and thrive in the ever-changing online marketplace and have a consumer base is a vital aspect of ensuring that e-commerce businesses are economically sustainable.

Chaudhary (2016) established a clear connection between e-commerce and various sustainability factors within business organizations. This comprehensive investigation considered all three dimensions of sustainability. From an economic perspective, the study examined how advancement in technology leads to enhanced energy efficiency, long-term financial competitiveness, improved cost efficiency, and a stronger market presence. According to the research findings, e-commerce significantly influences the financial competitiveness of business organizations. The study highlighted the top five factors most impacted by e-commerce: improvements in cost efficiency, enhanced market presence, more efficient resource utilization, and waste reduction.

Maintaining the financial sustainability of e-commerce is intrinsically linked to the well-being of the MSME sector. In the context of India, where MSMEs serve as a fundamental driver of economic progress, it is imperative to address the challenges they encounter. These challenges encompass limited market accessibility, the burden of high procurement costs, and a deficiency in digital technology awareness among MSMEs. E-commerce platforms have a pivotal role to play in helping MSMEs with these hurdles, thus fostering the expansion of their businesses. E-commerce platforms have also introduced initiatives to support the easy digital transition of MSMEs. For instance, in 2021, Amazon announced the 'Spotlight Northeast' programme, worth USD 25 million. The programme aims

to bring together and provide online support to 50,000 artisans, weavers, and small businesses from all eight states in the Northeast by 2025. The programme also helps boost the exports of key commodities such as tea, spices, and honey.

The relationship between MSMEs and e-commerce is mutually beneficial and symbiotic. As MSMEs engage with e-commerce platforms, they contribute significantly to their growth and vitality. MSMEs diversify the product and service offerings on these platforms, infusing them with depth and variety that appeals to a wider spectrum of customers. Furthermore, MSMEs often introduce distinctive and niche products to the market, thereby positioning e-commerce platforms as distinct from their competitors. This synergy not only bolsters green e-commerce but also fortifies the position of MSMEs in the evolving digital landscape. Therefore, e-commerce plays a crucial role in the economic growth of MSMEs, thereby enhancing their sustainability.

2.1.5 Technology

Technology encompasses both theoretical and practical knowledge and the skills and tools that can be applied to create products and services and design and operate production and delivery systems (Li-Hua & Lu, 2013).

Technological advancements have the potential to facilitate the development of sustainable businesses that align with net-zero and other sustainability dimensions. Companies are already harnessing technology accelerators to achieve their sustainability targets. For example, IoT (Internet of Things), data analytics, and sensor technologies are aiding in the reduction of carbon emissions in industrial operations through processes such as optimization and digitization. Additionally, these technologies are enhancing transparency in carbon data, promoting the development of green products and services, and addressing various sustainability challenges.

Efficiency serves as the driving force behind the development of technology, playing a crucial role in sustainability by enabling humans to extract resources from the environment and transform them to fulfil their needs. Additionally, technology's utilization and integration into society are influenced by social, political, and economic factors, ultimately shaping the breadth of its applications (Cabezas et al., 2004).

Within the sphere of sustainable technology development in the context of e-commerce, the business

model involves companies working together to develop and implement new environmentally friendly technologies for their operations. Technology serves as a critical element in promoting sustainability by emphasizing the use of renewable energy, efficient resource utilization, the adoption of advanced pollution control methods, and effective waste management practices (Sun et al., 2021). Moreover, technological advancement like AI, which are often associated with robotics, encompasses a much broader range of technologies, including machine learning, natural language processing (NLP), learning systems, gaming systems, and object detection. Through the integration of AI technologies such as machine learning, deep learning, augmented reality, virtual try-ons, avatars, and chatbots into websites, e-retailers offer convenience to customers and enhance the overall online shopping experience. As a result, retailers can reduce returns and increase their overall revenue generation (Mishra, 2022).

2.1.6 Organizational Performance

Sustainability is fundamentally reshaping how businesses operate. Managers and researchers have observed numerous advantages stemming from green e-commerce. These include improved operational efficiency, heightened share prices, enhanced brand reputation, stronger relationships with stakeholders and investors, and a boost in innovative capabilities.

Organizational performance is essentially about creating value through the voluntary association of productive assets, which can be human, physical, or other resources, all working toward a shared purpose. The key idea is that individuals or entities providing these assets will continue to do so if they find the value, they receive from the organization to be equal to or greater than the value they could get from alternative uses of these assets. In essence, organizational performance is about ensuring that the value created by utilizing contributed assets exceeds the expectations of those contributing them, ensuring the organization's sustainability and existence (Carton, 2004).

Organizational performance comprises the actual results or output of an organisation as measured against its intended results or outputs (Jahanshahi, 2021). Organizational performance is evaluated based on the objectives established by the management. This assessment encompasses various aspects, including production efficiency, financial health, marketing effectiveness, and shareholder returns.

Based on Jahanshahi (2021) literature review, the most frequently employed organizational

performance metrics in recent empirical research are financial or accounting performance, operational performance, and market-based performance.

- Financial Performance is typically evaluated using a combination of accounting-based metrics like profitability indicators such as return on assets, return on investment, return on sales, and return on equity. It may also involve market-based measures such as stock market returns or a blend of both accounting and market-based metrics like the price-earnings ratio. These measures provide insights into how well an organization is performing financially and how it is perceived by investors and the market (Jahanshahi, 2021).
- Market-based Measures reflect investor perceptions of a firm's future potential. These measures, typically derived from stock market data, place emphasis on the long-term value of the enterprise. The underlying assumption here is that in perfectly efficient markets, investors evaluate firms accurately, and as a result, stock market data are viewed as reliable indicators of corporate performance. In essence, they are seen as a reflection of how well a company is expected to perform in the future based on the collective wisdom of investors (Jahanshahi, 2021).
- Operational Performance is a critical aspect for businesses, encompassing various elements such as reducing management costs, order processing times, and lead times, and enhancing the efficient use of raw materials and distribution capacity. This concept is highly meaningful to companies as it contributes to improving the effectiveness of their production activities, leading to the creation of high-quality products or services. This, in turn, can result in increased revenue and profitability for these firms (Hadli, 2017). Additionally, as noted by Mohammed et al. (2019), operational performance evaluates various internal aspects of a company's operations, including cost management, customer service which includes customer satisfaction, delivery efficiency, product/service quality, flexibility, and process quality, all of which are pivotal for overall success and competitiveness. Customer satisfaction which is an integral part of overall organizational performance makes it important to understand the change urban consumers are undergoing that can ultimately impact the business. They are transitioning from seeking affordability to valuing eco-friendliness and sustainability. This shift is particularly notable in the context of the thriving e-commerce and delivery services sector.

Modern consumers are not only expecting companies to prioritize reduced carbon emissions but are also setting their sights on achieving net-zero carbon levels. The failure to meet these expectations carries the risk of jeopardizing the entire business. In the United States, consumer commitment to eco-conscious practices remains robust. A recent survey conducted in 2023 by Blue Yonder, a digital supply chain company, underscores this trend. Impressively, 69% of the respondents indicated their willingness to pay a premium for sustainable products. However, only a mere 4% of respondents were open to paying a higher price of up to 20% for such products. Additionally, nearly half of the respondents, accounting for 48%, reported a heightened interest in sustainability over the past year. The survey further reveals that consumers are most inclined to invest more in eco-friendly products that have a direct impact on their daily lives. Among these, apparel emerged as a prominent category. The majority of consumers, 58%, indicated that price remains a pivotal factor influencing their decision to make sustainable purchases. The insights from Blue Yonder's 2023 Consumer Sustainability Survey emphasize that, while consumer willingness to invest in sustainability is on the rise, price sensitivity remains a significant consideration.

Not just in developed countries, but even in developing nations, people are becoming more aware of the importance of sustainability. A study conducted by Bain & Company in 2022, titled "Unpacking Asia-Pacific Consumers' New Love Affair with Sustainability," discovered that a whopping 90% of people in the Asia-Pacific region are willing to spend extra money on sustainable products. This means they care about things like how products affect the environment and society, and how companies are run. This concern about sustainability in the Asia-Pacific region is as strong as it is in Europe and the US. Even in countries like India, more and more people are starting to care about sustainability. While not everyone fully understands it yet, about 20% of Indian consumers are beginning to think about the environment and society when they buy things. Even more, around 49% are paying attention to things that are good for their health. Interestingly, the study found that in India, 43% of people consider sustainability as one of the top five things they think about when they buy things. But even though many people say this, only 5% of the packaged foods on the market are sustainable. Sustainability is growing across different ages and income levels. This means that people of all ages, income levels, and genders are starting to think about buying things that are good for the planet and society. For

Indian consumers, though many people want to buy sustainable products, some reasons hold them back. Some folks don't know enough about sustainability, some think sustainable products are too expensive, some worry that not all "sustainable" products are truly good for the planet, and others can't find enough brands that sell these products. According to David Zehner, an expert from Bain & Company, people in the Asia-Pacific region are interested in sustainable products. This is a big chance for companies that make these products. If these companies can teach people more about sustainability, offer more sustainable options, and give clear and honest information on their packaging and websites, they can become leaders in the market in the future. From the above explanation, it can be concluded that customers are not only showing an interest in sustainability but are also ready to spend extra money on environmentally friendly products that provide added value. However, it's crucial to understand whether this growing interest in the concept of sustainability and sustainable products also contributes to heightened customer satisfaction and loyalty. Traditionally, satisfaction hinges on how well a product's performance aligns with customer expectations or established benchmarks (Guido, 2015).

2.2 Literature Map

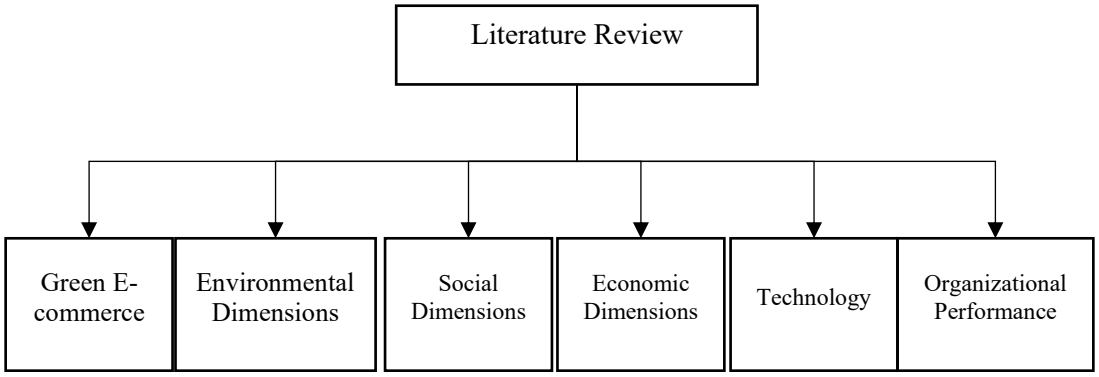


Figure 6. Literature Map
(Source: Self-constructed by author)

2.3 Summary Table of Literature Review

Table 2. Summary Table of Literature Review

Author	Year	Title	Green E-Commerce	Environmental Dimension	Social Dimension	Economic Dimension	Technology	Organizational Performance
Shegaw Aderaw	2019	Impact Of Total Quality Management (TQM) on Operational Performance of Ethiopian Pharmaceutical Manufacturing Plants						✓
Mian M. Ajmal, Mehmood Khan, Matloub Hussain &Petri Helo	2017	Conceptualizing And Incorporating Social Sustainability in The Business World			✓			
Alshura, M. S & Zabadi A. M	2016	Impact Of Green Brand Trust, Green Brand Awareness, Green Brand Image						✓
Bansal, P, & DesJardine	2014	Business Sustainability: It Is About Time. Strategic Organization	✓					
Bodhanwala, S., & Bodhanwala, R	2018	Does Corporate Sustainability Impact Firm Profitability? Evidence From India						✓
Cabezas, H., Pawlowski, C. W., Mayer, A. L., & Hoagland, N. T	2004	Sustainability: Ecological, Social, Economic, Technological, And Systems Perspectives		✓	✓	✓		
Choi, D., Chung, C. Y., & Young, J	2019	Sustainable Online Shopping Logistics for Customer Satisfaction and Repeat Purchasing Behaviour						✓
Chungyalpa, W.	2021	Understanding Business Sustainability: The What, The Why, And the How of Sustainable Business Practices.	✓					
Dong, Y., & Hauschild, M. Z.	2017	Indicators For Environmental Sustainability		✓				
Eizenberg, E., & Jabareen, Y.	2017	Social Sustainability: A New Conceptual Framework. Sustainability			✓			
Gao, J., Siddik, A. B., Abbas, S. K., Hamayun, M., Masukujjaman, M., & Alam, S. S	2023	Impact of E-Commerce and Digital Marketing Adoption on The Financial and Sustainability Performance of MSMEs During The COVID-19 Pandemic: An Empirical Study					✓	✓

Hussain, A., Shahzad, A., & Hassan, R.	2020	Organizational And Environmental Factors with the Mediating Role of E-Commerce and SME Performance		✓				✓
Hutchins, M. J., & Sutherland, J. W.	2008	An Exploration of Measures of Social Sustainability and their Application to Supply Chain Decisions			✓			
Jahanshahi, A. A.	2021	Analysing the Effects of Electronic Commerce on Organizational Performance: Evidence from Small and Medium Enterprises						✓
Kennedyd, S. I., Marjerison, R. K., Yu, Y., Zi, Q., Tang, X., & Yang, Z	2022	E-Commerce Engagement: A Prerequisite for Economic Sustainability—An Empirical Examination of Influencing Factors				✓		
Köhler et al.	2019	An Agenda for Sustainability Transitions Research: State of the Art and Future Directions. Environmental Innovation and Societal Transitions		✓	✓			
Kumar, S	2018	E-Commerce Growth in India	✓					
Laskar, N.	2018	Impact of Corporate Sustainability Reporting on Firm Performance: An Empirical Examination in Asia						✓
Mahajan, R., & Bose, M.	2018	Business Sustainability: Exploring the Meaning and Significance	✓					
Mishra, P	2022	A Review of AI (Artificial Intelligence) Tools and Customer Experience in Online Fashion Retail					✓	
Mofokeng, T. E	2021	The Impact of Online Shopping Attributes on Customer Satisfaction and Loyalty: Moderating Effects of E-commerce Experience.						✓
Mondejar et al.	2021	Digitalization To Achieve Sustainable Development Goals: Steps Towards a Smart Green Planet					✓	
Mustafa et al.	2022	Role Of Eco-Friendly Products in The Revival of Developing Countries' Economies and Achieving A Sustainable Green Economy		✓				
Oláh et al.	2023	Sustainable E-Commerce and Environmental Impact on Sustainability		✓				
Pabian et al.	2020	E-Customer Security as A Social Value in the Sphere of Sustainability			✓			
Pazienza, M., De Jong, M., & Schoenmaker, D	2022	Clarifying the Concept of Corporate Sustainability and Providing Convergence for its Definition	✓					
Rai et al	2021	Sharing Is Caring: How Non-Financial Incentives Drive Sustainable E-Commerce Delivery					✓	
Sarkar, M.	2023	Environmental Sustainability Under E-Commerce: A Holistic Perspective		✓				
Satnalika, N., & Rao, S. V. D. N	2015	Sustainability of E-Retail in India	✓					
Shewale, B. Y.	2021	Future of E-Commerce in India-2021	✓					
Srinivasan, S. S., Anderson, R. E., & Ponnavolu, K	2002	Customer Loyalty in E-Commerce: An Exploration of Its Antecedents and Consequences						✓

Stojanović et al	2018	Importance of Environmental Sustainability for Business Sustainability		✓				
Tennakoon et al	2022	Measuring Economic Sustainability: Are We Doing It Right?				✓		
Tiwari, S., & Singh, P.	2021	E-Commerce: Prospect or Threat for Environment		✓				
Carton	2004	Measuring Organizational Performance: An Exploratory Study						✓
Vallance et al	2011	What Is Social Sustainability? A Clarification of Concepts			✓			
Xie, G et al	2021	Assessing Consumer Preference for Overpackaging Solutions in E-Commerce		✓				
Xie, H et al	2022	The Impact of E-Commerce on Environmental Sustainability Targets in Selected European Countries		✓				
Zhang, M.	2023	Sustainability Transitions in E-Commerce Research—Academic Achievements and Impediments	✓					
Zhao, X., Pan, C., Cai, J., & Wu, J.	2021	Driving E-Commerce Brand Attachment Through Green Packaging: An Empirical Investigation		✓				

(Source: Self-constructed by author)

2.4 Research Gap

In recent years, there has been a noticeable increase in research on how e-commerce can be more environmentally friendly and sustainable. This interest has grown significantly, with many new research papers published (Zhang, 2023). However, there is an important area that has not received enough attention. Most of this research focuses on e-commerce in developed countries. The available literature indicates that sustainability efforts on a global scale often revolve around economic, ecological, and social dimensions. Insufficient research has been done on understanding e-commerce sustainability in developing countries, where the challenges and opportunities can be quite different.

An additional challenge lies in the absence of a robust method for understanding the sustainability performance of e-commerce companies. To summarize, these research gaps emphasize the urgent need for future research endeavours. Specifically, it calls for research efforts aimed at increasing understanding of sustainability within the e-commerce sector. Addressing these gaps will contribute significantly to advancing our knowledge of green e-commerce practices, with the potential to drive positive changes.

PART - III

3.1 Need of the Study

According to the India Brand Equity Foundation (IBEF), India saw a significant surge in e-commerce,

reaching a turnover of USD 50 billion in 2020. This positioned India as the eighth-largest e-commerce market globally, just behind France and ahead of Canada. The global impact of the COVID-19 pandemic and the accompanying restrictions led to a reassessment of lifestyles and consumer habits. It underscored the significance of online shopping, emphasizing its convenience.

The rise of internet shopping has profoundly impacted daily life, transforming the way people purchase both essential and luxury items. As e-commerce expanded, online marketplaces became more accessible to a broader range of consumers, reshaping their shopping habits and consumption patterns. Moreover, this trend underscored the growing importance of green e-commerce models in the industry. With a forward-looking perspective, there is now an increased emphasis on ensuring the long-term viability of e-commerce.

Increased pressure from stakeholders and a growing public awareness of sustainability issues have brought sustainable practices within e-commerce to the forefront. In India, the adoption of sustainability efforts and sustainability reporting is still in its early stages, representing an area with substantial potential for growth and development.

3.2 Research Questions

This study aims to explore the intricate interplay of environmental, economic, and social dimensions in the context of green e-commerce, with a particular emphasis on technology. The central inquiry of this research centres around the potential advantages that green e-commerce can offer to businesses, seeking to bring forth insights that resonate with practical significance and advance the understanding of the subject matter. The study seeks to address the following major issues to achieve its goals:

- What are the key environmental, social, and economic factors and practices influencing the development of green e-commerce?
- What role does technology play in enhancing green e-commerce?
- What are the performance outcomes, both financial and non-financial, associated with the adoption of green e-commerce practices?
- What strategic approaches and initiatives can green e-commerce businesses undertake to enhance their sustainability and competitiveness?

PART - IV

4.1 Research Objectives

- To investigate Green E-Commerce in India through Triple Bottom Line analysis - Environmental, Social, and Economic Dimension.
- To examine the role of technology (Importance and Impact) in Green E-Commerce
- To explore the impact of Green E-commerce on Organizational Performance (Financial Performance, Operational Performance, Market-based Performance).
- To develop a framework for the relevant stakeholders that can contribute to the improved understanding of green e-commerce.

4.2 Conceptual Framework and Hypotheses

The visual representation provided below outlines the fundamental structure of the proposed research. The widespread acceptance and effectiveness of green e-commerce hinge on the incorporation of practices that are environmentally sustainable, socially ethical, and economically viable. Also, understanding how technology supports these three critical components. In essence, the success of green e-commerce depends on the seamless integration of these three critical components to create a sustainable and responsible business model for the future.

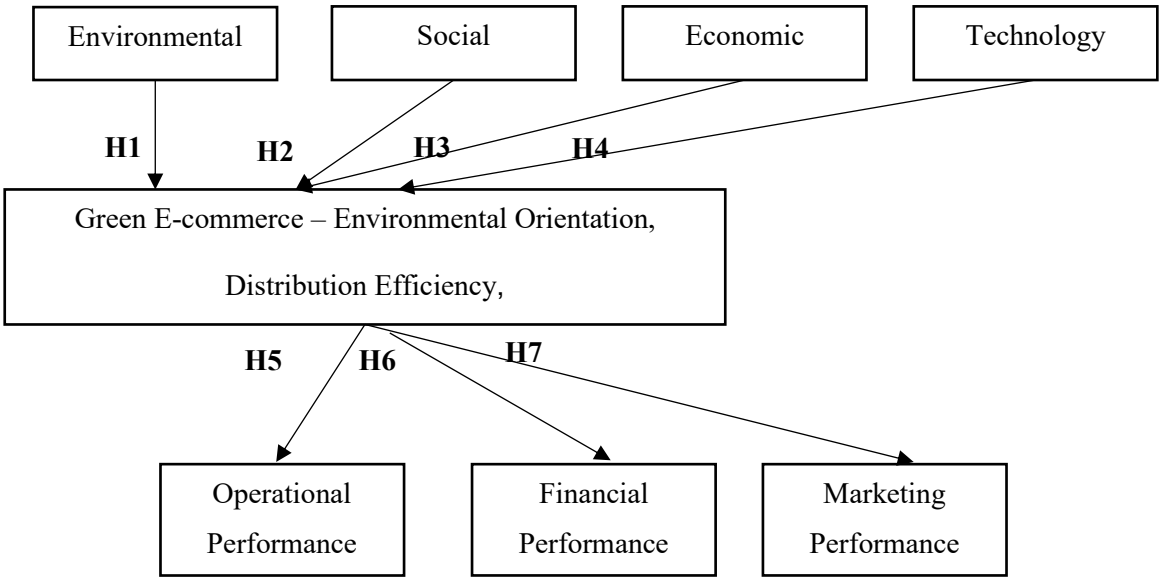


Figure 7. Conceptual Framework
(Source: Self-constructed by author)

4.3 Background for Hypotheses Formulation

4.3.1 Environmental Dimensions

Several studies indicate that green practices positively impact e-commerce (Chaudhary, 2016; Stojanović et al. 2018; Xie et al., 2022; and Oláh et al., 2018). The concept of the environment encompasses various elements, including climate systems, the state of living conditions and habitats, energy systems, the depletion and availability of resources, and patterns of consumption. This comprehensive approach aims to ensure both economic prosperity and the overall health of the earth.

One such study by Stojanović et al. (2018) aimed to examine how the environmental commitment of companies influences their business sustainability. The research employed a survey method, involving participation from employees in Russia and Serbia. Participants responded to a structured questionnaire that employed a five-point Likert scale for assessing various statements. The questionnaire addressed several key aspects. Firstly, participants were asked to evaluate the extent to which companies demonstrated a commitment to environmental responsibility. Additionally, they assessed the implementation of measures aimed at reducing environmental impact. Lastly, participants rated indicators reflecting the long-term performance of the companies.

The results obtained from the structural equation modelling (SEM) analysis indicated that companies in Russia and Serbia effectively integrate environmental considerations into their business operations. Moreover, employees exhibited a high level of awareness regarding these environmentally conscious activities. Furthermore, the study established a positive correlation between the adoption of environmentally friendly practices by companies and their overall business sustainability.

Ho1: The adoption of environmentally friendly practices has no significant impact on the growth and success of green e-commerce.

Ha1: The adoption of environmentally friendly practices has a significant impact on the growth and success of green e-commerce.

4.3.2 Social Dimensions

Many of the studies showcased a positive influence of the social dimension of business practices on green e-commerce (Chaudhary, 2016; Rai et al. 2021; Terzi, 2011; and Chaudhuri & Kumar, 2015).

Ethical and inclusive business practices must be promoted for social sustainability in e-commerce. Along with fostering diversity and inclusion in recruiting and representation, this also entails guaranteeing fair working conditions across the supply chain and actively interacting with local communities to have a beneficial impact. E-commerce platforms that prioritize social sustainability can help create a more just and responsible digital economy where both customers and employees are treated with respect and dignity, eventually boosting trust and long-term success in the online market.

Chaudhary (2016) studied the connection between e-commerce and the sustainability of business organizations, encompassing all aspects of sustainability, including social elements such as engaging all staff in carbon-neutral improvement activities, drawing supplier and partners' attention to environmental credentials, improved ethical behaviour, and better job security. The research employed a method of simple random sampling without replacement (SRSWOR), with the sampling unit comprising working professionals and students. Regarding the social dimension, the study found that e-commerce played a pivotal role in reforming operational practices, engaging all staff in carbon-neutral improvement initiatives, and significantly correlating with reduced product acquisition and remarketing efforts. Furthermore, e-commerce's impact on ethical behaviour was positively correlated with increased adherence to international norms and ethical conduct, which, in turn, had a significant relationship with e-commerce's ability to optimize material usage. In summary, the study overall demonstrates a positive association between the social dimension and the adoption of e-commerce within business organizations.

Ho2: The adoption of socially responsible practices has no significant impact on the growth and success of green e-commerce.

Ha2: The adoption of socially responsible practices has a significant impact on the growth and success of green e-commerce.

4.3.3 Economic Dimensions

The economic dimension provides the necessary resources to ensure the company's sustainability in the future thus, acting as a compelling driving force. To attain economic sustainability, businesses should prioritize innovation, streamline operational costs, and seek opportunities for growth and

market expansion, thereby strengthening their financial position and ensuring long-term viability in the ever-evolving landscape of e-commerce (Oláh et al., 2018). Recently, a correlation analysis conducted by Sun et al. (2021) has underscored that, in contemporary contexts, the economic aspect holds substantial importance for the effectiveness of e-commerce business models. Additionally, this analysis has highlighted that the environmental dimension is equally important, emphasizing the need to balance economic and environmental considerations for successful green e-commerce.

Ho3: The incorporation of economically viable strategies has no significant impact on green e-commerce.

Ha3: The incorporation of economically viable strategies has a significant impact on green e-commerce.

4.3.4 Technology

Technology can indeed have a favourable impact on the sustainability of an organization, and information technology (IT) stands as a promising driver for such technological advancements. IT plays a pivotal role in driving corporate sustainability, notably through automation, a traditional function of IT in business. Automation involves replacing human effort with modern information technology, resulting in reduced costs, enhanced efficiency, and increased productivity. Many organizations rely on information technology to automate processes that were once carried out manually (Hack & Berg, 2014). Attaining cost efficiency through technological advancements not only promotes energy efficiency but also increases long-term financial competitiveness, ultimately leading to an increased market share (Oláh et al., 2018).

Artificial intelligence tools and processes also have a profound impact on the e-commerce industry, significantly influencing the satisfaction of online customers. AI possesses the capability to provide customers with positive experiences, contributing to the establishment of brand trust and increased customer satisfaction (Mishra, 2022).

Ho4: The incorporation of advanced technology has no significant impact on green e-commerce.

Ha4: The incorporation of advanced technology has a significant impact on green e-commerce.

4.3.5 Organizational Performance

According to research conducted by Ahmed (2022), it was found that the company's adoption of green packaging has been shown to have a notably positive influence on both sustainability dimensions and operational performance. these findings highlight that the company's strategic commitment to green packaging in its business development and planning enhances its ability to deliver goods while simultaneously enhancing sustainability and operational performance. Operational performance benefits from reduced waste and process enhancements. moreover, there is evidence of improved environmental and social dimensions attributed to the company's dedication to sustainable advancement. Hejazi et al. (2022) in their research also studied the impact of supply chain management on operational performance along with the effect of artificial intelligence and payment flexibility on operational performance. The study found that when supply chain disruptions occur, they can harm operational performance. However, when companies implement effective supply chain risk management practices, these disruptions no longer have a negative impact; instead, they can lead to improved operational performance. Supply chain risk management acts as a mediator, helping to turn a potentially negative situation into a positive one.

Sustainable practices within the realm of e-commerce play a crucial role in elevating customer satisfaction and nurturing long-lasting trust. When online businesses prioritize sustainability, they send a powerful message of their dedication to ethical and responsible conduct, which resonates positively with their customer base. This dedication yields a range of significant advantages. To begin with, green e-commerce operations often strongly emphasise delivering high-quality products and services, ensuring that customers receive items that not only meet but often exceed their expectations. Factors such as the timeliness of product delivery, the perception of security, the quality of the information provided, and the range of products available collectively contribute to shaping the overall satisfaction of online shoppers (Mofokeng, 2021).

Furthermore, sustainable practices typically involve clear and forthright communication regarding a company's environmental and social initiatives. This transparency builds trust between the brand and its customers, who value being well-informed about the company's sustainability endeavours. Such transparent communication not only bolsters customer satisfaction but also cultivates a profound sense

of connection and allegiance to the brand.

Ho5: Green e-commerce has no significant impact on operational performance.

Ha5: Green e-commerce has a significant impact on operational performance.

Sustainable practices also have an impact on the market-based performance of the firm. According to the study conducted by Laskar (2018) which focuses on the firm performance, which is assessed through the market-to-book ratio (MBR), a market-based metric. Notably, there is a growing trend in the disclosure of corporate sustainability performance information among companies in Japan, South Korea, and India. The research reveals a noteworthy positive and statistically significant relationship between corporate sustainability performance (CSP) and firm performance (MBR) in these three countries.

Furthermore, this positive and statistically significant association between CSP (both in terms of its level and quality) and firm performance extends to all four Asian countries under examination. Moreover, the impact of CSP on MBR appears to be more pronounced in developed countries compared to their counterparts in the developing world.

Ho6: Green e-commerce has no significant impact on marketing performance.

Ha6: Green e-commerce has a significant impact on marketing performance.

The influence of sustainability on a company's profitability is a fundamental element in the contemporary business environment. With the growing incorporation of environmentally and socially responsible measures, organizations are finding that sustainable strategies not only adhere to ethical values but also deliver concrete economic advantages. This transition towards sustainability not only improves its reputation but frequently results in reduced costs, opportunities for innovation, and a more robust financial performance.

The study undertaken by Bodhanwala & Bodhanwala (2018) an examination of the association between corporate sustainability and the profitability performance of Indian firms. The research findings provide compelling evidence of a positive and substantial relationship between a firm's profitability metrics, including ROIC, ROE, ROA, and EPS, and its sustainability practices. Moreover, the results shed light on a significant distinction between high-rated ESG (Environmental, Social, and

Governance) firms and their low-rated ESG counterparts. Specifically, high-rated ESG firms exhibit substantially lower levels of leverage when compared to low-rated ESG firms. This discrepancy implies that high-rated ESG firms have broader access to equity capital markets, reducing their reliance on borrowed funds to finance operations. Additionally, when considering mean values, sustainable firms stand out concerning profit-related parameters, as well as metrics such as sales and investment trends. Notably, these findings are confined to the analysis of accounting-based performance indicators within the scope of the present study.

Ho7: Green e-commerce has no significant impact on financial performance.

Ha7: Green e-commerce has a significant impact on financial performance.

PART - V

6.1 Research Methodology

6.1.1 Research Design

The proposed research will utilize a descriptive research design, employing an online survey questionnaire to obtain a precise depiction of individuals, occurrences, and circumstances. This approach relies on the use of an online questionnaire format to ensure accuracy in gathering data.

The research will assess the variables of the proposed study through the development of a self-reporting questionnaire. This questionnaire aims to evaluate the influence of environmental, social, and economic sustainability on e-commerce practices. It will be designed by sustainability disclosure reporting standards (SDR), which are rooted in the reporting guidelines established by the Global Reporting Initiative (GRI). By adhering to these standards, the questionnaire seeks to gauge the extent to which e-commerce entities integrate sustainable principles into their operations. Through analysis of responses gathered from the questionnaire, an index will be constructed to measure the desired effect of sustainability initiatives within the realm of e-commerce. This index will provide valuable insights into the effectiveness of sustainability efforts in shaping the practices and policies of e-commerce platforms.

Environmental Sustainability: The environmental dimension revolves around maintaining ecological harmony. It involves making choices and taking steps that prioritize the protection of nature, with a

strong focus on safeguarding the environment's capacity to support human life. Businesses, recognized as major contributors to environmental impact, are expected to take a leading role in advancing the environmental dimension. Their influential position empowers them to bring about significant change. By assuming responsibility for adopting sustainable practices, businesses can set a precedent and substantially impact preserving the environment. Through this collective effort, they reduce their ecological footprint and inspire a wider movement towards a balanced coexistence with the environment. For our study, we will concentrate on three key elements of the environment: Climate Change, Waste Management, and Energy Sources.

Social Sustainability: The social dimension refers to the aspects of sustainability that relate to people. People should be understood as workers, consumers, suppliers, shareholders, community, etc., that significantly influence the abilities of a company to function now as well as in the future. When applied to the e-commerce sector, this perspective underscores the vital importance of ensuring customer security as a fundamental element of the social dimension of sustainability along with dimensions like learning & growth (education & training, generating quality employment. and job security), social growth (community building, consumer/product responsibility and social involvement), and safety & security (fair practices and health & safety).

Economic Sustainability: Concerning e-commerce, achieving economic sustainability involves the careful and strategic management of financial resources, partnerships, and activities. The goal is to ensure the continued financial viability of e-commerce businesses and to make positive economic contributions to the broader digital commerce ecosystem. The article "E-Commerce Engagement: A Prerequisite for Economic Sustainability" by Kennedyd et al. (2022) points out that in today's world, for businesses of all shapes and sizes, having some form of online presence is crucial for their long-term success. The ability to adjust and thrive in the ever-changing online marketplace and have a consumer base is a vital aspect of ensuring that e-commerce businesses are economically sustainable. Chaudhary (2016) established a clear connection between e-commerce and various sustainability factors within business organizations. This comprehensive investigation considered all three dimensions of sustainability. From an economic perspective, the study examined how advancement in technology leads to enhanced energy efficiency, long-term financial competitiveness, improved cost

efficiency, and a stronger market presence. According to the research findings, e-commerce significantly influences the financial competitiveness of business organizations. The study highlighted the top five factors most impacted by e-commerce: improvements in cost efficiency, enhanced market presence, more efficient resource utilization, and waste reduction.

6.1.2 Scope of the Study

The scope of this study encompasses e-commerce companies/platforms operating in India and their adoption of green practices (like Amazon, Flipkart, and Meesho). It focuses on the impact of these green practices on various dimensions of organizational performance, including financial performance, operational performance, and market performance.

6.1.3 Sample Design

The population of target consumers here are upper and middle management of e-commerce firms in India. The population size being more than 50,000, we apply the formula of Godden (2004) for sample size calculation.

$$\text{Sample size} = \frac{[Z^2 p\,(1-p)]}{C^2}$$

Z = Z-score (considering a confidence level of 90%, this value is 1.645)

p = Maximum proportion of the population of interest. Considered as 0.5 for this case

C = margin of error (considering 5% in this case)

Based on the above, the sample size comes to: $[1.645^2 * 0.5\ (1\text{-}0.5)]/0.05^2 = 270.6$

This gives us a sample size of 271 respondents to be surveyed.

6.1.4 Source of Data Collection

6.1.4.1 Primary Data Collection:

Primary research is set up by surveys, sampling (judgmental sampling), questionnaires, testing and analytical issues to understand Green E-Commerce.

6.1.4.2 Secondary Data Collection:

Concerning the dynamic nature of the research, secondary data will provide information and facts related to the study. These will be collected via:

- Journals
- Sustainability reports published by companies
- Case study
- Research reports
- Forrester, Gartner and similar research organizations
- Reports published by McKinsey, Deloitte and similar management consulting firms

6.1.5 Statistical tool to be used:

In this study, the research methodology will involve employing statistical tools for the analysis of data. Specifically, the analysis will include correlation analysis, cluster analysis, and regression analysis to assess the sustainability of e-commerce companies' business models (Sun et al., 2021). To carry out this analysis, the researcher will utilize the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique, employing the SmartPLS software (Hussain et al., 2020). PLS-SEM is a powerful statistical method that allows for the representation of latent concepts and constructs not fully explored in prior research. It also provides a visual depiction of intricate relationships among variables, enhancing the understanding of the research findings.

PART - VI

Proposed Chapterization

The proposed study will contain the following

Chapter 1: Overview of the Study

Chapter 2: Literature Review

Chapter 3: Research Design and Methodology

Chapter 4: Data Collection and Analysis

Chapter 5: Results and Interpretations

Chapter 6: Conclusion and Managerial Implications

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Appendix

PART - VII

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